

Los Alamos

**Los Alamos National Laboratory
Los Alamos, New Mexico 87545**

DATE: 09/04/02

**100% TITLE II
CALCULATIONS
FOR
CCN CHILLED WATER SYSTEM OPTIMIZATION
MASTER PLAN**



Team

NOTE: In March 2002, this job was split into two projects both having the same Project I.D. 100256 but different Task Orders and renamed the following:

- 1. CCF/LDCC COOLING PLANT MODIFICATIONS
– Task Order 053.**
- 2. LDCC EC-1 MODIFICATIONS – Task Order 091**

The calculations herein apply to both projects.

**UNIVERSITY OF CALIFORNIA
LOS ALAMOS, NEW MEXICO 87545**

**PROJECT I.D.
NO. 100256**

PROFESSIONAL APPROVAL FORM

Project/Task Title: **CCF/LDCC COOLING PLANT MODS**
Project ID/Task No. 100256/TASK 53
Rev. 0

Subcontract No. 135681102CX_____
Calculation(s) No. See Below_____
Issue Date: September 4, 2002_

Calculation(s) No. 3442.053.SCAL.001 - .010
3442.053.MCAL.001 - .006
3442.053.ECAL.001

CALCULATION(S)
FOR
PROFESSIONAL APPROVAL

The designs, specifications, and drawings comprising this subcontract have been prepared by or under the cognizance of Registered Engineers holding a valid license in the State of New Mexico issued by the State Board of Registration for Professional Engineers, and Licensed Architects holding valid licenses in the State of New Mexico issued by the Board of Architectural Examiners.

DISCIPLINE **STRUCTURAL**

Designer

Date

Checker

Date

Discipline Lead

Date

DISCIPLINE **MECHANICAL**

Designer

Date

Checker

Date

Discipline Lead

Date

DISCIPLINE **ELECTRICAL**

Designer

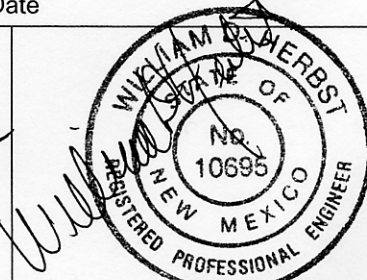
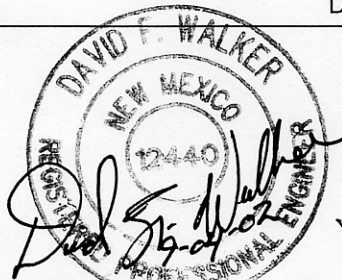
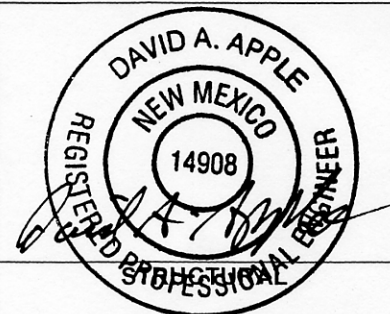
Date

Checker

Date

Discipline Lead

Date

**MECHANICAL****ELECTRICAL**

9/3/02

STRUCTURAL CALCULATIONS

STRUCTURAL CALCULATION INDEX/LOG

PROJECT I.D.# 100256

TASK ORDER 053

B&P JOB # 5050.26

PROJECT TITLE: CCN CHILLED WATER SYSTEM OPTIMIZATION MASTER PLAN

3442.053.SCAL.					DATE of Release/Revision	
Discipline	CALC No 3442.053. SCAL.	Title	Preparer	Checker	Rev A	Rev 0
STRUC	001	LDCC 3 RD LEVEL FRAMING – ANALYSIS/CAPACITY	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	002	LDCC TRAPEZE DESIGN FOR 2 – 12” DIA AND 2 – 6” DIA PIPES	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	003	LDCC TRAPEZE DESIGN FOR 12” DIA PIPE PARALLEL TO FRAMING	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	004	LDCC MEZZANINE SUPPORT FOR 4” DIA PIPES	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	005	CCF VFD FREE STANDING FLOOR MOUNTED SUPPORT	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	006	LDCC EC1 COOLING COIL FRAMING & SUPPORT	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	007	LDCC & CCF FLOOR MOUNTED PIPE SUPPORT	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	008	LDCC EC1 EXTERIOR PIPE SUPPORTS	DAVID APPLE	JIM WEEKS	10/16/01	08/29/02
STRUC	009	LDCC 2 ND FLOOR EQUIPMENT SUPPORT	DAVID APPLE	JEFFREY FREELAND	07/11/02	08/29/02
STRUC	010	LDCC MEZZANINE LEVEL PIPE SUPPORTS / STANDS	DAVID APPLE	JEFFREY FREELAND	08/27/02	08/29/02

MECHANICAL CALCULATIONS

MECHANICAL CALCULATION INDEX/LOG

PROJECT I.D.# 100256

B&P PROJECT MANAGER: MIKE SLAMAN

TASK ORDER 053

B&P JOB # 5050.26

PROJECT TITLE: CCN CHILLED WATER SYSTEM OPTIMIZATION MASTER PLAN

3442.053.MCAL.

DATE of
Release/Revision

Discipline	CALC No 3442.053. MCAL.	Title	Pages	Preparer	Checker	Rev A	Rev 0
MECH	001	CHILLED WATER SYSTEM CALCULATIONS		DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION ONE	• CCF & LDCC Load Calcs	2	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION TWO	• LDCC Cooling Coil Calculation & Selection	14	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION THREE	• LDCC/CCF Combined Chilled Water System Expansion Tank Calculation	3	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION FOUR	• Pump Impeller, VFD & Fan Inlet Vane Data	6	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION FIVE	• Condenser Water Pump – PCT-06 Calculation	6	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
MECH	002	ENERGY & MAINTENANCE COST ANALYSIS	8	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
MECH	003	Engineered Software Inc. "Pipe Flo" Analysis of LDCC/CCF Chilled Water System		DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	SECTION ONE	Chilled Water Supply Temperature at Decoupler	2	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	ATTACHMENT 1	List Report	70	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
	ATTACHMENT 2	Materials Report	48+ 4 dwgs	DAVID WALKER	MIKE SLAMAN	10/16/01	9/4/02
MECH	004	Chilled Water Piping Freeze Protection	7	DAVID WALKER	MIKE SLAMAN		9/4/02
MECH	005	Air Separator Selection	15	DAVID WALKER	MIKE SLAMAN		9/4/02
MECH	006	Wall Hydrant Selection	10	DAVID WALKER	MIKE SLAMAN		9/4/02

ELECTRICAL CALCULATIONS



PROJECT TITLE: CCN CHILLED WATER SYSTEM OPTIMIZATION MASTER PLAN

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